

WHAT IS CLAIMED IS:

1. A mobile communication terminal apparatus
which communicates with either a first base station or
a second base station and performs a handover from one
5 to another of the base stations, the mobile
communication terminal apparatus comprising:

an array antenna which outputs a plurality of
signals;

10 a plurality of multipliers that multiply the
signals output from the array antenna by weighting
factors, and output multiplication result signals;

a reception device configured to generate a
reception signal based on the multiplication result
signals output from the multipliers;

15 a control device configured to perform a
calculation for the weighting factors based on the
reception signal, and adaptively control the
multipliers by supplying the calculated weighting
factors thereto; and

20 an initial value calculating device configured to
calculate at least one initial value for the weighting
factors prior to the handover,

wherein

25 the control device starts the calculation for the
weighting factors using the initial value when the
handover is performed.

2. The mobile communication terminal apparatus

according to claim 1, wherein the initial value
calculating device includes:

an estimation device configured to estimate an
arrival direction of radio waves radiated from the
5 second base station and arrived at the mobile
communication terminal apparatus; and

a storing device configured to store the initial
value of the weighting factors that is calculated with
regard to the arrival direction.

10 3. The mobile communication terminal apparatus
according to claim 1, wherein the reception device
performs a radio communication between the mobile
communication terminal apparatus and the first base
station or the second base station in accordance with
15 the TDMA(Time Division Multiple Access) scheme.

4. The mobile communication terminal apparatus
according to claim 3, wherein the estimation device
estimates said arrival direction through a time zone
other than a time slot specified in the TDMA scheme.

20 5. The mobile communication terminal apparatus
according to claim 1, wherein the reception device
performs a radio communication between the mobile
communication terminal apparatus and the first base
station or the second base station in accordance with
25 the CDMA(Code Division Multiple Access) scheme.

6. The mobile communication terminal apparatus
according to claim 2, wherein the estimation device

acquires a base station list from the first base station or other base stations, and selects the second base station among the other base stations with reference to the base station list.

5 7. The mobile communication terminal apparatus according to claim 1, wherein the initial value calculating device updates the initial value for the weighting factors calculated with regard to the arrival direction by applying an adaptive control algorithm
10 including LMS (Least Mean Square) to the initial value.

 8. The mobile communication terminal apparatus according to claim 1, wherein the initial value calculating device outputs the initial value for the weighting factors calculated with regard to the arrival
15 direction when a reception level is higher than a predetermined threshold value.

 9. A mobile communication terminal apparatus which communicates with either a first base station or a second base station and performs a handover from one
20 to another of the base stations, the mobile communication terminal apparatus comprising:

 an array antenna which outputs a plurality of signals;

 a plurality of multipliers that multiply the
25 signals output from the array antenna by weighting factors, and output multiplication result signals;

 a reception device configured to generate

a reception signal based on the multiplication result
signals output from the multipliers;

5 a control device configured to perform a
calculation for the weighting factors based on the
reception signal, and adaptively control the
multipliers by supplying the calculated weighting
factors thereto;

10 an initial value calculating device configured to
calculate at least one initial value for the weighting
factors prior to the handover, the initial value
calculating device including:

15 an estimation device configured to estimate an
arrival direction of radio waves radiated from the
second base station and arrived at the mobile
communication terminal apparatus; and

a storing device configured to store information
that identifies the estimated arrival direction;

wherein

20 the control device starts the calculation for the
weighting factors using the initial value when the
handover is performed.

25 10. The mobile communication terminal apparatus
according to claim 9, wherein the reception device
performs a radio communication between the mobile
communication terminal apparatus and the first base
station or the second base station in accordance with
the TDMA(Time Division Multiple Access) scheme.

11. The mobile communication terminal apparatus according to claim 10, wherein the estimation device estimates said arrival direction through a time zone other than a time slot specified in the TDMA scheme.

5 12. The mobile communication terminal apparatus according to claim 9, wherein the reception device performs a radio communication between the mobile communication terminal apparatus and the first base station or the second base station in accordance with
10 the CDMA(Code Division Multiple Access) scheme.

13. The mobile communication terminal apparatus according to claim 12, wherein the estimation device acquires a base station list from the first base station or other base stations, and selects the second
15 base station among the other base stations with reference to the base station list.

14. The mobile communication terminal apparatus according to claim 9, wherein the initial value calculating device updates the initial value for the
20 weighting factors calculated with regard to the arrival direction by applying an adaptive control algorithm including LMS(Least Mean Square) to the initial value.

15. The mobile communication terminal apparatus according to claim 9, wherein the initial value
25 calculating device outputs the initial value for the weighting factors calculated with regard to the arrival direction when a reception level is higher than

a predetermined threshold value.

16. A mobile communication terminal apparatus
which communicates with either a first base station or
a second base station and performs a handover from one
5 to another of the base stations, the mobile
communication terminal apparatus comprising:

an array antenna which outputs a plurality of
signals;

10 a plurality of multipliers that multiply the
signals output from the array antenna by weighting
factors, and output multiplication result signals;

a reception device configured to generate a
reception signal based on the multiplication result
signals output from the multipliers;

15 a control device configured to perform a
calculation for the weighting factors based on the
reception signal, and adaptively control the
multipliers by supplying the calculated weighting
factors thereto;

20 an initial value calculating device configured to
calculate at least one initial value for the weighting
factors prior to the handover;

a storing device configured to store the
calculated initial value;

25 wherein

the control device starts the calculation for the
weighting factors using the initial value when the

handover is performed.

17. The mobile communication terminal apparatus
according to claim 16, wherein the reception device
performs a radio communication between the mobile
5 communication terminal apparatus and the first base
station or the second base station in accordance with
the TDMA(Time Division Multiple Access) scheme.

18. The mobile communication terminal apparatus
according to claim 16, wherein the reception device
10 performs a radio communication between the mobile
communication terminal apparatus and the first base
station or the second base station in accordance with
the CDMA(Code Division Multiple Access) scheme.

19. The mobile communication terminal apparatus
15 according to claim 1, further comprising:

a first synchronization circuit for bit
synchronization and frame synchronization, which is
used for communication with the first base station; and
a second synchronization circuit for bit
20 synchronization and frame synchronization, which is
used for communication with the second base station.